# R-Series Pump Owner's Manual for RP, RPF, AFP 400 and AFP 500 Series Pumps

## IMPORTANT SAFETY INSTRUCTIONS
## *READ AND FOLLOW ALL INSTRUCTIONS*
## SAVE THESE INSTRUCTIONS

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### ⚠ WARNING

Before installing this product, read and follow all warning notices and instructions accompanying this pump. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions.

### Important Notice



Attention Installer.

This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

### ⚠ WARNING



**Risk of electrical shock or electrocution.**

This pool pump must be installed by a licensed or certified electrician or a qualified pool serviceman in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

Always disconnect power to the pool pump at the circuit breaker before servicing the pump. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electric shock.


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**⚠CAUTION**

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

**⚠CAUTION**

DO NOT OPERATE THIS UNIT DRY. Operating this unit dry will damage the shaft seal which will cause the pump to leak.

**⚠CAUTION**

Motor must be wired as indicated on motor diagram. (See box cover and nameplate). Refer to 'Motor Rotation Check' for correct pump rotation. Incorrect rotation can damage the pump.

## SECTION I. INSTALLATION PROCEDURES.

### A. SELF PRIMING VERSION (PUMP WITH STRAINER).

Pump should not be installed more than 8 feet above water level. For suction pipe exceeding 15 feet run suction check valve is required. Pump must be installed with a minimum of 2 feet of vertical discharge piping.

**⚠CAUTION**

For priming, make sure that strainer pot of the casing has sufficient water before starting pump. Starting the pump with insufficient water will prevent the pump from priming and can damage the shaft seal.

1. Pump should be installed in a sheltered, well ventilated location and be protected from excessive moisture (i.e. sprinklers, rain, flood water, etc.).
2. Pump should be installed so that motor assembly can be removed for easy maintenance and repair. Allow 24 inches minimum from back wall.

## SECTION II. MOTOR REMOVAL; see Figures 1 and 2.

1. Remove clamp (item no. 1), cover (item no. 2), o-ring (item no. 3), and take out strainer (item no. 4).

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NOTE

Clamp, cover, o-ring, and strainer basket not included in "RPF and AFP 500, 501" version (less strainer pot).

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2. Drain pump by removing plugs (item no. 23) and washer (item no. 24).
3. Remove bolts (items no. 5 and 27) and washers (items no. 6 and 26) and carefully slide motor (item no. 31) end as a unit from casing (item no. 22).
4. Remove diffuser (item no. 10) by removing screws (item no. 8) and lockwashers (item no. 9).
5. Remove Allen head cap screw (item no. 11) and gasket (item no. 12) from center of impeller (item no. 14). Pull impeller off motor shaft. Do not lose square key (item no. 13).
6. Remove o-ring (item no. 16). Check for cuts or deterioration. Replace as necessary. Remove seal plate (item no. 19).
7. Remove bolts (item no. 17) and remove motor adapter (item no. 18) from motor (item no. 31).
8. For the 3, 20 (MH Imp. only) and 25 Hp size pumps, remove spacer (item no. 21) by removing screw (item no. 20). Check for cracks and replace as necessary.

**⚠CAUTION**

Check the ceramic and the carbon faces of seal (item no. 15). Make sure they are not chipped or cracked. Replace as necessary.

## SECTION III. MOTOR INSTALLATION.

1. Install ceramic side of seal (item no. 15) into seal plate (item no. 19) if removed, making sure the ceramic smooth face is facing out.
2. Install motor adapter (item no. 18) to motor (item no. 31) using bolts (item no. 17). Make sure adapter drain opening is at the bottom.
3. Align bolt holes and locating pin of seal plate (item no. 19) and motor adapter (item no. 18).

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**NOTE**

Seal plate will not bottom down unless locating pin is in the proper location.

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4. Press seal spring member (item no. 15) with carbon face towards the ceramic seal face. Avoid cutting the seal rubber diaphragm on the shaft.

**⚠CAUTION**

Make sure that the carbon and ceramic faces of the seal are free from grease or oil contamination.

5. Position key (item no. 13) into motor shaft. Line up key ways and slide impeller (item no. 14) onto motor (item no. 31) shaft until it bottoms on the shaft shoulder. Insert key (item no. 13) and secure with gasket (item no. 12), and lockscrew (item no. 11).
6. Position and install diffuser (item no. 10) using lockwasher (item no. 9) and screw (item no. 8).
7. Clean and grease o-ring (item no. 16) and place in seal plate (item no. 19) groove.
8. Position and carefully slide in assembled motor unit in casing (item no. 22) and secure using washers (item no. 6) and bolts (item no. 5).
9. Secure motor to pump support (item no. 29).
10. Install gaskets (item no. 24) and plugs (item no. 23).

FOR 'RP' AND 'AFP 400' SERIES.

11. Install strainer (item no. 4), o-ring (item no. 3) and cover (item no. 2) using clamp assembly(item no. 1).

**⚠CAUTION**

DO NOT OPERATE THIS UNIT DRY. Operating this unit dry will damage the shaft seal which will cause the pump to leak.

B. MOTOR ROTATION CHECK.

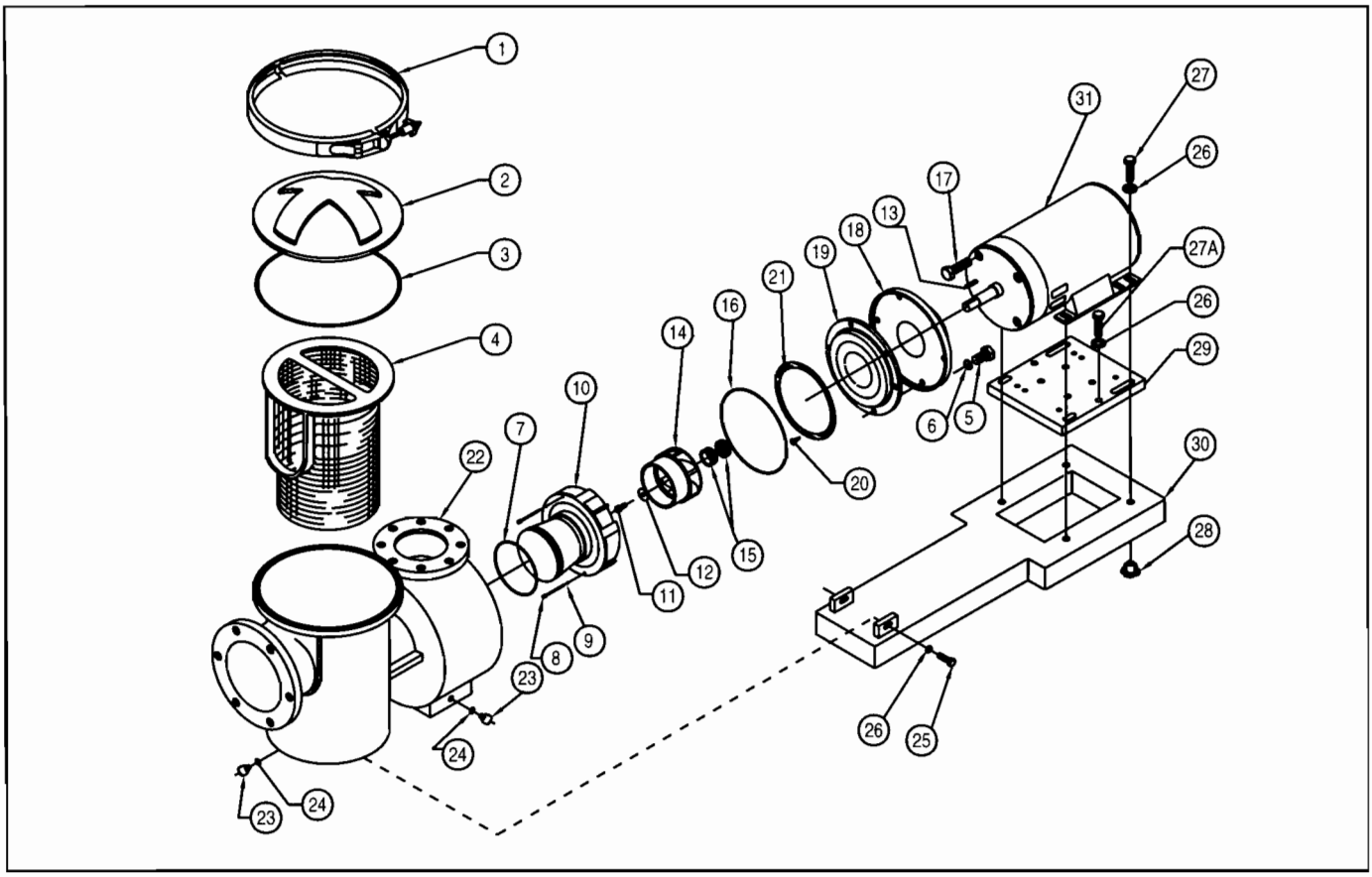
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**NOTE**

Motor Shaft rotation must be in the same direction of the arrow as indicated on the motor adapter (item no. 18). Check motor rotation by removing shaft end cap or by the grilled fan at the side of the motor casing. Momentarily start and stop motor.

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1. For three-phase motor, interchange two lead wire to reverse direction.
2. For single-phase motor, refer to motor nameplate wiring diagram.




| Item No. | Part No. | Description | Qty. |
|---|---|---|---|
| 1 | 075845 | Clamp asssembly | 1 |
| 2 | 075851 | Lid, pot | 1 |
| 3 | 357038 | O-ring, lid Neoprene #2-454 | 1 |
| 4 | 075844 | Strainer, basket s/s | 1 |
| 5 | 075841 | Bolt ½ - 13 UNC x 1 ¼ in. s/s hex | 6 |
| 6 | 075842 | Washer ½ x .125 THK s/s | 10 |
| 7 | 075848 | O-ring, diffuser | 1 |
| 8 | 075849 | Screw #10-24 x 2 ¼ in. lg. soc. hd. s/s | 2 |
| | | (5, 7½, 10 and 15 Hp) | |
| 8 | 357122 | Screw #10-24 x 2 ¾ in. lg. rd. hd. s/s | 2 |
| | | (AFP 400, 401, 20 and 25 Hp) | |
| 9 | 075850 | Lockwasher | 2 |
| 10 | 075914 | Diffuser (5, 7½, 10 Hp) | 1 |
| 10 | 075915 | Diffuser (AFP 400, 401, 15, 20 and 25 Hp) | 1 |
| 11 | 071037 | Lockscrew | 1 |
| 12 | 357132 | Gasket, Velumoid 3/8 in. I.D. x 5/8 in. O.D. | 1 |
| 13 | 357129 | Impeller key 3/16 sq x 1 ¼ in. lg. s/s | 1 |
| 14 | | Impeller (see table 1) | 1 |
| 15 | 071725 | Seal | 1 |
| 16 | 075846 | O-ring, seal plate #2-371 | 1 |
| 17 | 075843 | Bolt ½ - 13 x 1 hex s/s (10-25 Hp, 7½, 1 Ph) | 4 |
| 17 | 070429 | Bolt, 3/8 - 16 x 7/8 hex s/s 3, 5 (7½ Hp, 3 Ph) | 4 |
| 18 | 357105 | Adapter, motor - AFP 400, 401, 5 (7½ Hp, 3 Ph) | 1 |
| 18 | 357104 | Adapter, motor - (7½ Hp, 1 Ph), 10, 15, 20 and 25 Hp | 1 |
| 19 | 357103 | Plate, seal | 1 |
| 20 | 357113 | Screw #8 - 3/8 lg. slftap s/s - (AFP 400, 401, 20 and 25 Hp) | 2 |
| 21 | 357106 | Spacer, diffuser (AFP 400, 401 Hp) | 1 |
| 22 | 357130 | Casing, AFP 400, 401 | 1 |
| 22 | 075544 | Casing, RP series ( 5, 7½, 10 and 15 Hp) | 1 |
| 23 | 071131 | Plug - AFP 400, 401 and RP series (w/strainer pot) | 2 |
| 24 | 074629 | Gasket - AFP 400, 401 and RP series (w/ strainer pot) | 2 |
| 25 | 070429 | Bolt 3/8 - 16 x 7/8 lg. hex s/s | 2 |
| 26 | 072180 | Washer 3/8 in. s/s | |
| | | (10 to 25 Hp) | 6 |
| | | (AFP 400, 401 to 7½ Hp) | 10 |

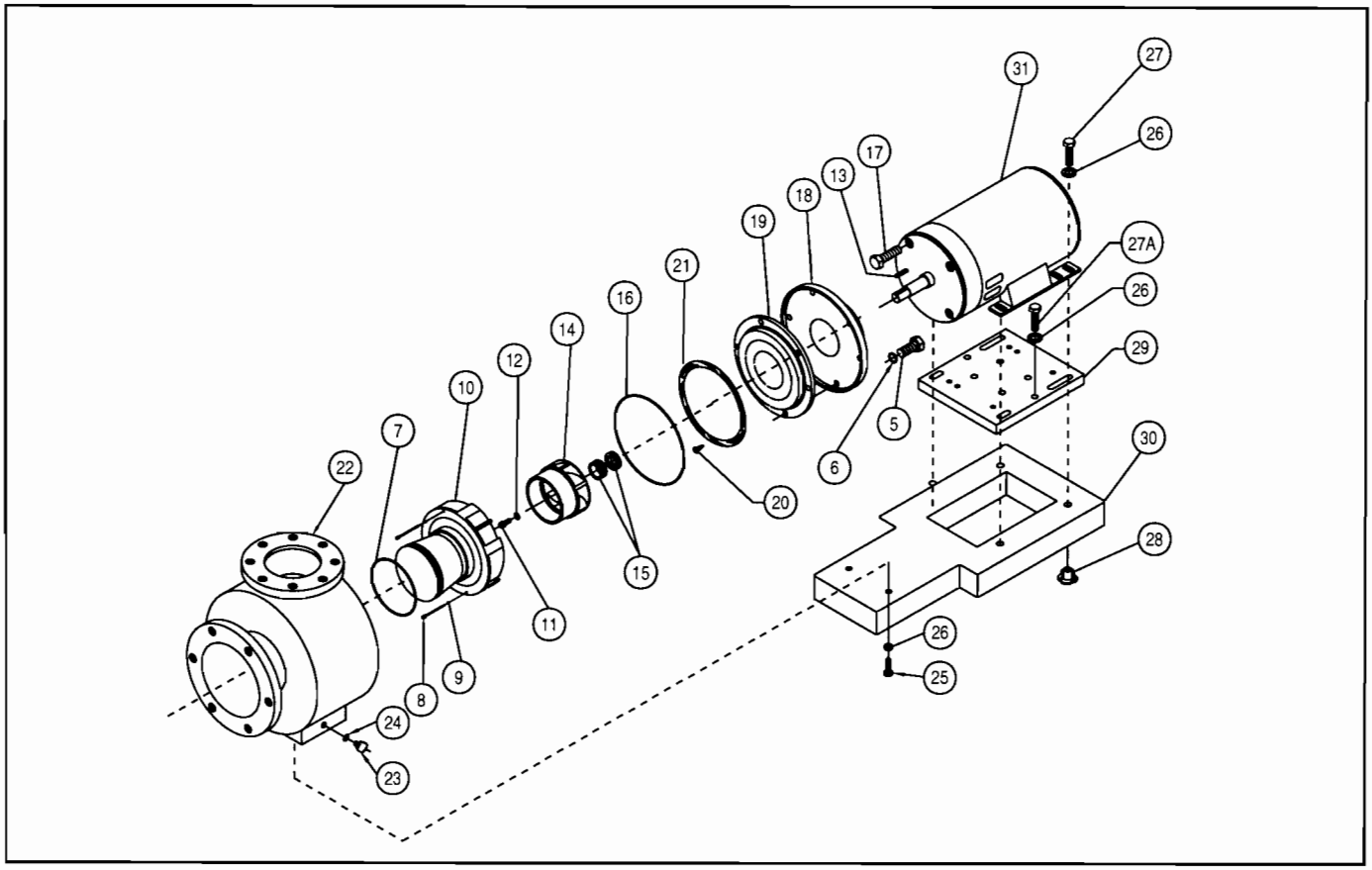
| Item No. | Part No. | Description | Qty. |
|---|---|---|---|
| 27 | 075492 | Screw 3/8 - 16 UNC x 2½ in. lg. hex CAD pl | |
| | | (AFP 400, 401 to 10 Hp) | 4 |
| | | (15 to 25 Hp) | 6 |
| 27A | 073974 | Screw 3/8 - 16 UNC x 2 in. lg. hex CAD pl | |
| | | AFP 400, 401, 5 and (7½Hp, 3 Ph) | 4 |
| 28 | 076064 | Nut, tee 3/8 - 16 UNC | |
| | | AFP 400, 401, 5 and (7½Hp, 3 Ph) | 8 |
| | | (7½Hp, 1 Ph) 10, 20 and 25 HP | 4 |
| | | 15 Hp | 6 |
| 29 | 075541 | Adapter (3 to 15 Hp) | 1 |
| 30 | 075540 | Support Pump - AFP 400, 401 and RP series (w/ strainer pot) | 1 |
| 31 | | Motor (see table 2) | |

**TABLE 1, IMPELLER REFERENCES**

| Part No. | Pump Size | Motor Hp |
|---|---|---|
| 357119 | AFP - 400, AFP -401 | 3 Hp |
| 357114 | RPM - 50, RPMK - 50 | 5.0 Hp |
| 357123 | RPM - 75, RPMK - 75 | 7½ Hp |
| 357128<br>357124 | RPMK - 100<br>RPHK - 100 | 10 Hp |
| 357118<br>357116 | RPMK - 150<br>RPHK - 150 | 15 Hp |

**TABLE 2, MOTOR REFERENCES**

| Part No. | Size | Phase | RPM |
|---|---|---|---|
| 357064 | 3 Hp | 1 Ph | 1725 |
| 357067 | 3 Hp | 3 Ph | 1725 |
| 357065 | 5 Hp | 1 Ph | 3450 |
| 357068 | 5 Hp | 3 Ph | 3450 |
| 357066 | 7½ Hp | 1 Ph | 3450 |
| 357069 | 7½ Hp | 3 Ph | 3450 |
| 357070 | 10 Hp | 3 Ph | 3450 |
| 357071 | 15 Hp | 3 Ph | 3450 |
| 357094 | 20 Hp | 3 Ph | 3450 |
| 357095 | 25 Hp | 3 Ph | 3450 |




| Item No. | Part No. | Description | Qty. |
|---|---|---|---|
| 5 | 075841 | Bolt ½ - 13 UNC x 1 ¼ in. s/s hex | 6 |
| 6 | 075842 | Washer ½ x .125 THK s/s | 10 |
| 7 | 075848 | O-ring, diffuser | 1 |
| 8 | 350012 | Screw #10-24 x 2 3/8 in. lg. soc. hd. s/s (5, 7½, 10 and 15 Hp) | 2 |
| 8 | 357122 | Screw #10-24 x 2 ¾ in. lg. rd. hd. s/s (AFP 500, 501, 20 and 25 Hp) | 2 |
| 9 | 075850 | Lockwasher | 2 |
| 10 | 075914 | Diffuser (5, 7½, 10 Hp) | 1 |
| 10 | 075915 | Diffuser (AFP 500, 501, 15, 20 and 25 Hp) | 1 |
| 11 | 071037 | Lockscrew | 1 |
| 12 | 357132 | Gasket, Velumoid 3/8 in. I.D. x 5/8 in. O.D. | 1 |
| 13 | 357129 | Impeller key 3/16 sq x 1 ¼ in. lg. s/s | 1 |
| 14 | | Impeller (see table1) | 1 |
| 15 | 071725 | Seal | 1 |
| 16 | 075846 | O-ring, seal plate #2-371 | 1 |
| 17 | 075843 | Bolt ½ - 13 x 1 hex s/s | 4 |
| 17 | 070429 | Bolt, 3/8 - 16 x 7/8 hex s/s 3, 5 (7½ Hp, 3 Ph) | 4 |
| 18 | 357105 | Adapter, motor - AFP 500, 501, 5 (7½ Hp, 3 Ph) | 1 |
| 18 | 357104 | Adapter, motor - (7½ Hp, 1 Ph), 10, 15, 20 and 25 Hp | 1 |
| 19 | 357103 | Plate, seal | 1 |
| 20 | 357113 | Screw #8 - 3/8 lg. slftap s/s-(AFP 500, 501, 20 and 25 Hp) | 2 |
| 21 | 357106 | Spacer, diffuser (AFP 500, 501, 20 and 25 Hp) | 1 |
| 22 | 357131 | Casing, AFP 500, 501 | 1 |
| 22 | 357049 | Casing, RPF series ( 5, 7½, 10 and 15 Hp) | 1 |
| 22 | 357058 | Casing, RPF series ( 20 and 25 Hp) | 1 |
| 23 | 071131 | Plug - AFP 500, 501 and RPF series (w/o stainer pot) | 1 |
| 24 | 074629 | Gasket - AFP 500, 501 and RPF series (w/o strainer pot) | 1 |
| 25 | 070429 | Bolt 3/8 - 16 x 7/8 lg. hex s/s | 2 |
| 26 | 072180 | Washer 3/8 in. s/s | |
| | | (10 to 25 Hp) | 6 |
| | | (3 to 7½ Hp) | 10 |

| Item No. | Part No. | Description | Qty. |
|---|---|---|---|
| 27 | 075492 | Screw 3/8 - 16 UNC x 2½ in. lg. hex CAD pl | |
| | | (3 to 10 Hp) | 4 |
| | | (15 to 25 Hp) | 6 |
| 27A | 073974 | Screw 3/8 - 16 UNC x 2 in. lg. hex CAD pl | |
| | | AFP 500, 501, 5 and (7½Hp, 3 Ph) | 4 |
| 28 | 076064 | Nut, tee 3/8 - 16 UNC | |
| | | AFP 500, 501, 5 and (7½Hp, 3 Ph) | 8 |
| | | (7½Hp, 1 Ph) 10, 20 and 25 HP | 4 |
| | | 15 Hp | 6 |
| 29 | 075541 | Adapter (AFP 500, 501 to 15 Hp) | 1 |
| 30 | 357056 | Support Pump - AFP 500, 501 and RPF series | |
| | | (w/o strainer pot) | 1 |
| 31 | | Motor (see table 2) | |

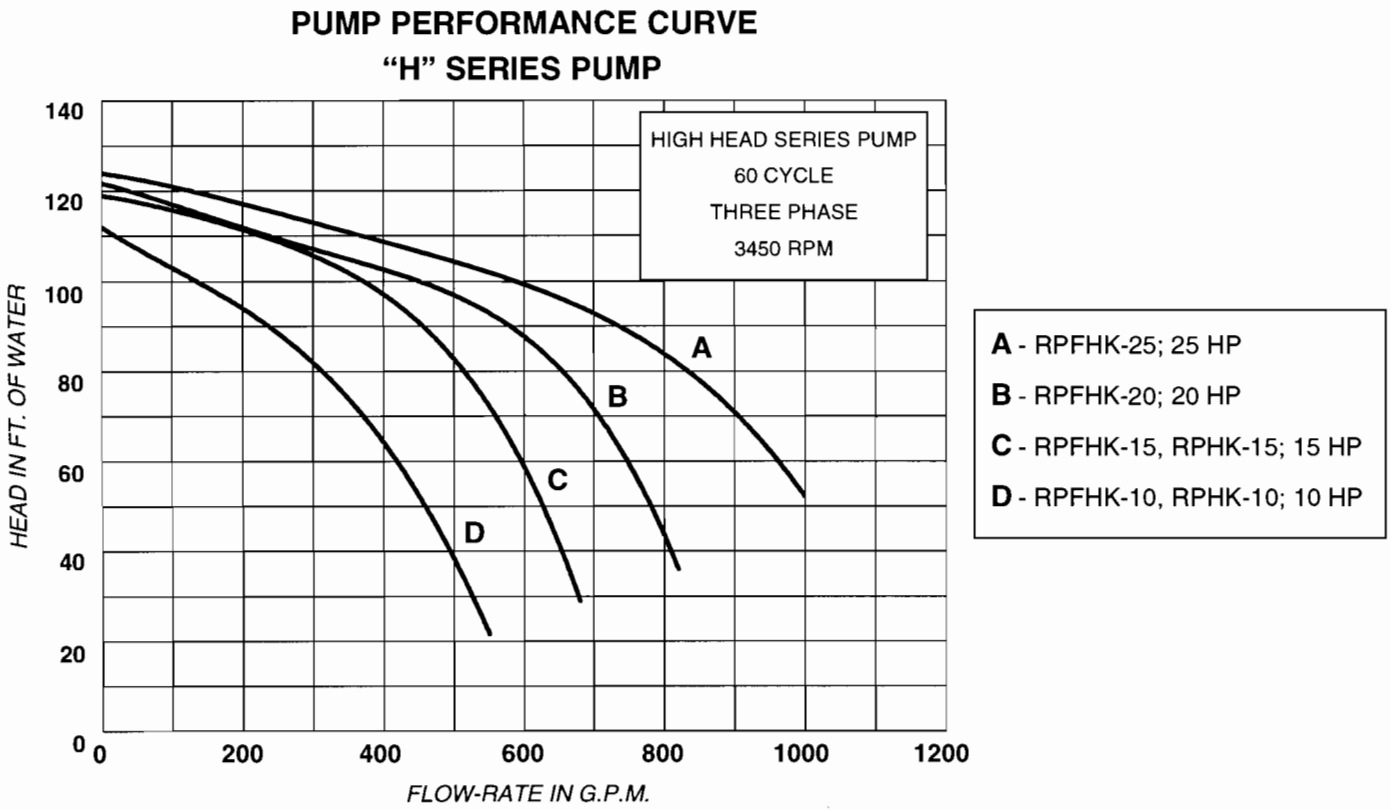
**TABLE 1, IMPELLER REFERENCES**

| Part No. | Pump Size | Motor Hp |
|---|---|---|
| 357119 | AFP - 500, AFP -501 | 3 Hp |
| 357114 | RPFM - 50, RPFMK - 50 | 5.0 Hp |
| 357123 | RPFM - 75, RPFMK - 75 | 7½ Hp |
| 357128<br>357124 | RPFMK - 100<br>RPFHK - 100 | 10 Hp |
| 357118<br>357116 | RPFMK - 150<br>RPFHK - 150 | 15 Hp |
| 357120<br>357117 | RPFMK - 200<br>RPFHK - 200 | 20 Hp |
| 357119 | RPFHK - 250 | 25 Hp |

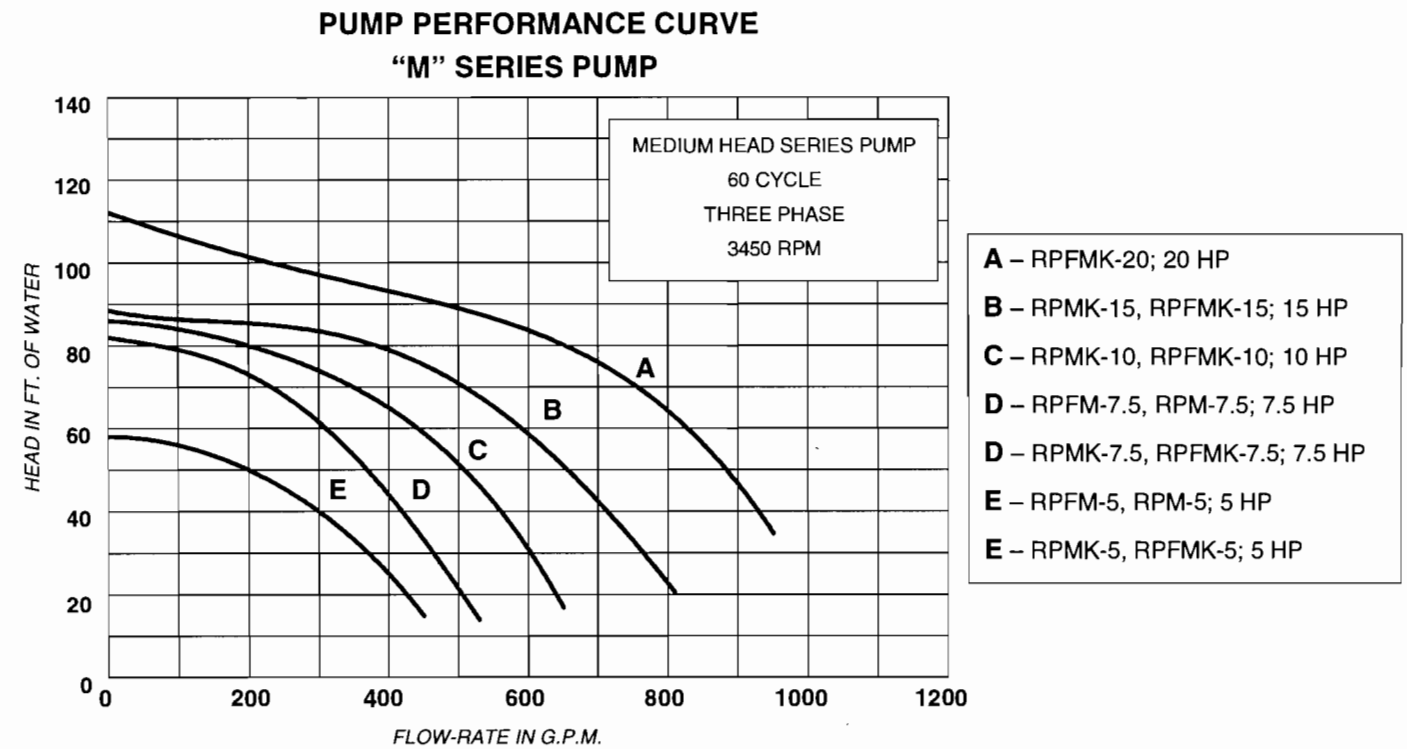
**TABLE 2, MOTOR REFERENCES**

| Part No. | Size | Phase | RPM |
|---|---|---|---|
| 357064 | 3 Hp | 1 Ph | 1725 |
| 357067 | 3 Hp | 3 Ph | 1725 |
| 357065 | 5 Hp | 1 Ph | 3450 |
| 357068 | 5 Hp | 3 Ph | 3450 |
| 357066 | 7½ Hp | 1 Ph | 3450 |
| 357069 | 7½ Hp | 3 Ph | 3450 |
| 357070 | 10 Hp | 3 Ph | 3450 |
| 357071 | 15 Hp | 3 Ph | 3450 |
| 357094 | 20 Hp | 3 Ph | 3450 |
| 357095 | 25 Hp | 3 Ph | 3450 |

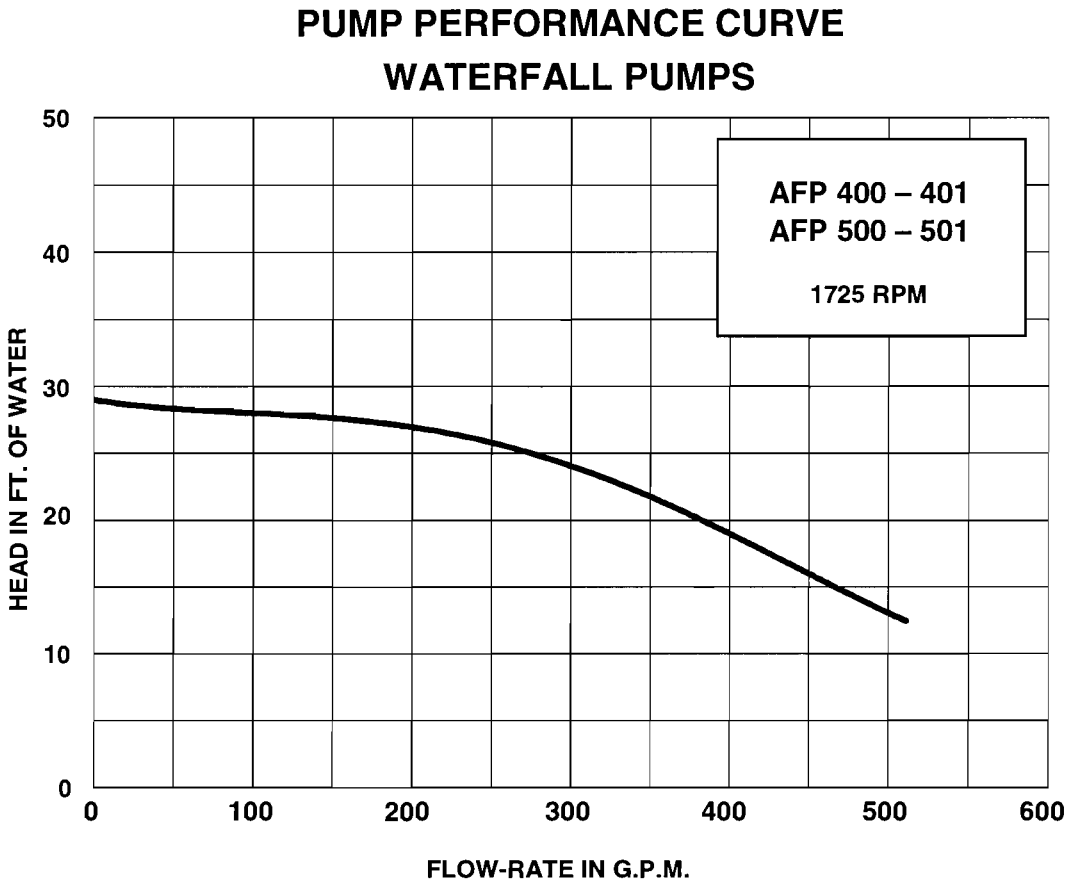
A. HIGH HEAD SERIES PUMP PERFORMANCE CURVES




B. MEDIUM HEAD SERIES PUMP PERFORMANCE CURVES



C. WATERFALL PUMPS PERFORMANCE CURVE




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